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The information and judgments presented in this publication were derived principally from analysis of imagery. Although information from other sources of intelligence may be included for background, this publication does not reflect an all-source assessment and has not been formally coordinated within CIA. (U)

Comments and queries on the contents of this publication are welcomed. They should be directed to the analyst whose name and green line extension appear after each article. (U)

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**Initial Deployment of the
Soviet SA-11 Surface-to-Air
Missile System**

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Recent imagery reveals that the Soviets have begun to deploy the SA-11 mobile surface-to-air missile (SAM) system. The SA-11 transporter-erector-launcher and radar vehicle (TELAR) is being deployed with SA-6 mobile SAM units where it will augment, and perhaps eventually replace, the SA-6 in protecting Soviet army units from low- to medium-altitude high-performance threats.

The SA-11 TELAR has a launch platform which apparently can rotate 360 degrees and a tracking radar/illuminator mounted on a tracked chassis. ELINT indicates that the TELAR can launch either SA-6 or SA-11 missiles and that the new system has electronics improvements which are designed to counter electronic countermeasures and to allow the system to engage receding targets. The initial deployment indicates that the Soviets apparently plan one SA-11 TELAR and three SA-6 transporter-erector-launchers (TELS) for each firing battery. The addition of the TELAR will give each firing battery the capability to engage two targets nearly simultaneously.

The first complete mixed SA-6/SA-11 regiment was observed at the Emba Missile Test Center. Subsequently, SA-11 TELARs have been identified with a deployed SA-6 regiment garrisoned at Leninakan Army Barracks, North AL 3 in the Transcaucasus Military District. The mixed SA-6/SA-11 regiment observed at Emba consisted of five firing batteries, one target acquisition battery, and a large complement of support equipment. Each firing battery had three SA-6 TELs, one SA-11 TELAR, one Straight Flush SA-6 missile tracking and guidance radar, and one SA-6 service transloader. The target acquisition battery appeared to have one Flat Face and one Spoon Rest D radar in addition to one Long Track and one Thin Skin B.

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**Chinese Developing Mobile
Ku-Band COMSAT Equipment** [REDACTED]**New Chinese Space Launch
Vehicle Being Developed
at Minhang** [REDACTED]

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Analysis of imagery and collateral information indicate that the Chinese are developing mobile Ku-band communications satellite (COMSAT) equipment. Members of a US delegation to China have reported that a transportable ground station consisting of an antenna about 3 meters in diameter and an associated equipment trailer—both of Chinese manufacture—has been used to receive the Ku-band Japanese TV Broadcast Satellite (BSE). A solid parabolic dish antenna about 3.5 meters in diameter and an associated equipment trailer have been seen on photography of the Nanjing (Nanching) COMSAT facility since August 1978. [REDACTED]

The correlation of satellite imagery with reports of US officials who visited China's space-related production facilities indicates that the Long March-3, China's new space launch vehicle, is undergoing research, development, and final assembly at the Shanghai Guided Missile Plant at Minhang. The Long March-3 will be a three-stage liquid propellant space launch vehicle utilizing a five-percent-upgraded version of the two-stage CSL-2 space booster for its first and second stages. [REDACTED]

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The Minhang plant had been identified from imagery as being associated with the Chinese missile and space program as early as July 1978. The officials who visited the plant saw a fully assembled space launch vehicle and were told that it would be shipped directly to a launch facility from the plant. [REDACTED]

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Transportable ground stations with antennas operating in the Ku-band frequency range with a direct-broadcast satellite system would give the Chinese a mobile telecommunications system for both civilian and military use. The Chinese have requested such a system from the US for the dissemination of educational television and communications to remote areas. The system would supplement China's 40 known COMSAT ground stations—equipped primarily with 10- and 15-meter-diameter antennas—which are configured to operate at C-band frequencies. These 40 facilities, which are located in or near large population centers and near existing communications links, cannot reach portions of the population located in remote areas. Most likely, they will serve as regional downlink distribution centers for voice and television rebroadcast when the Chinese launch their own communications satellite or a satellite purchased from another country. [REDACTED]

Analysis of satellite imagery indicates that a launch vehicle was shipped by rail from the Minhang plant to the Shuangchengzi Missile Test Center (SCZMTC) about eight weeks prior to the 27 July 1979 scientific satellite launch. [REDACTED]

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[REDACTED] the booster was a modified CSL-2, the first stage of which had been upgraded with about five percent more thrust. [REDACTED]

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Limited Submarine Repair Capability Being Established in Libya (TS R)

Imagery of mid-January 1980 revealed an F-class diesel-powered attack submarine in a floating dry-dock at Tarabulus. This submarine is most likely one of the three Soviet-built F-class operated by the Libyan Navy. The fact that it is located in the dry-dock indicates that the Libyan Navy may be developing at least a modest capability to repair and maintain its submarines in-country. [REDACTED]

Libya does not possess a major ship repair yard to which this F-class submarine could be transferred, and no shore-based facilities have been seen supporting work done in the floating drydock at Tarabulus, it appears likely that the work being done on the submarine is limited to minor repair or general maintenance. Likewise, major overhaul and repair of Libyan submarines probably will continue to be done at shipyards outside Libya. [REDACTED]

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The only naval ships previously repaired at the dock at Tarabulus were small surface combatants. Overhaul and repair of Libyan submarines was performed at Tivat, Yugoslavia, probably with the assistance of Soviet personnel stationed there. Since [REDACTED]

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New OIA Publications

The following reports have been published by the Office of Imagery Analysis since the last issue of the *Imagery Analysis Monthly Review*.

Imagery Research Papers

1. IS 79-10172K, [REDACTED], *Soviet Naval Air-Cushion Vehicles: Construction and Deployment*, November 1979 (Top Secret RUFF [REDACTED]) 25X1
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2. IS 79-101781, [REDACTED], *Soviet Naval Presence in Vietnam*, November 1979 (Top Secret RUFF [REDACTED]) 25X1
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3. IS 79-10182K, [REDACTED], *Israeli Settlements in the West Bank—Their Status and Expansion Since Mid-1978*, December 1979 (Top Secret RUFF [REDACTED]) 25X1
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4. IS 79-10166K, [REDACTED], *Romanian Chemical Fertilizer Production Facilities*, December 1979 (Top Secret RUFF [REDACTED]) 25X1
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5. IS 79-10219K, [REDACTED], *Syrian Petroleum Refineries*, December 1979 (Top Secret RUFF [REDACTED]) 25X1
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6. IS 79-10187J, [REDACTED], *CSS-3 Permanent Soft Site Deployment, China*, December 1979 (Top Secret RUFF [REDACTED]) 25X1
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Imagery Analysis Memorandums

- [REDACTED] 25X1
3. IS 79-10218K, [REDACTED], *Sightings of Modified Foxbat Aircraft From 21 April 1976 Through 31 October 1979* (Top Secret RUFF [REDACTED]) 25X1
- [REDACTED] 25X1
5. IS 79-10223K, [REDACTED], *Integration Testing of AS-9 Missile and Specially Outfitted Backfire-B Bomber* (Top Secret RUFF [REDACTED]) 25X1
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6. IS 79-10217, *Rail-Served Grain Storage Facilities, Zambia* (Secret [REDACTED]) 25X1
7. IS 79-10227K, [REDACTED], *Soviet Brigade Activity in Cuba—1 November Through 17 December 1979* (Top Secret RUFF [REDACTED]) 25X1
8. IS 80-10010J, [REDACTED], *4th Army Kunming Military Region, China* (Top Secret RUFF [REDACTED]) 25X1
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9. IS 79-10209K, [REDACTED], *ZAPU Camps in Zambia* (Top Secret RUFF [REDACTED]) 25X1
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10. IS 80-10001K, [REDACTED], *Export of T-72 Tanks to the Third World—A Production, Export and Receipt Correlation* (Top Secret RUFF [REDACTED]) 25X1
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11. IS 80-10005K, [REDACTED], *Analysis of Verkhnyaya Salda Unidentified Installation, USSR* (Top Secret RUFF [REDACTED]) 25X1
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